

Remarks

In paragraph 13 of the second Office Action, the Examiner has objected to claims 7 and 20 but has indicated these claims would be allowable if rewritten in independent form. Accordingly, claim 7 has been cancelled and resubmitted in independent form as new claim 38. Claim 20 has been cancelled and resubmitted in independent form as new claim 39. Therefore, claims 38 and 39 should now be allowable.

In paragraph 2 of the second Office Action, the Examiner has rejected claims 1-6, 12-19, 24-30 and 34 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,370,404 to Klein et al. The Examiner states:

Klein et al discloses a seal for use adjacent to a rotating surface (3) comprising a ring (4) having a sealing surface (17) sealing between the stationary surface (of 2) and the sealing surface. The ring has a race engagement surface (engaging 9.2) separate from the sealing surface. Klein et al also discloses a first race (9.1), a second race (9.2), and a plurality of bearing elements (9).

The Examiner's comments about claim 14 in paragraph 6 of the Office Action are similar.

Applicant respectfully traverses this rejection for the following reasons.

Klein et al., fails to show specific elements of every claim and therefore is an insufficient reference under 35 U.S.C. §102(b).

With regard to claims 1 and 14, and the claims depending therefrom, Klein's shaft sealing ring 4 is not the same as the claimed ring of the present invention. The ring in Klein is a multi-piece device for sealing and vibration damping which provides sealing contact between stationary wall 2 and rotating shaft 3, and the ring of the present invention is spaced from the rotating surface. Further, nothing in Klein indicates that reinforcement ring 17 acts as an effective seal. Rather, in FIG. 1 of Klein, the sealing is

accomplished by mantling of flange 18 and by axial sealing lip 22. [Klein, col. 4, ll. 35-46]. In FIG. 2 of Klein, mantling 10 projects outward of the reinforcement ring so that a "reliable" seal is formed. [Klein, col. 4, ll. 63-66]. That is, the sealing is independent of reinforcement ring 17 in either embodiment. This is unlike the present invention.

Claims 1 and 14 have been amended to include the limitation that the ring is spaced from the rotating surface or rotor, respectively. In view of this amendment, and the above-described deficiencies of Klein, claims 1 and 14 should be allowed along with the claims depending therefrom.

With regard to claim 4, Klein clearly does not show planar bearing surfaces. The Examiner states in paragraph 3 of the Office Action, "first race (9.1) has a substantially planar bearing surface (top surface in figure 1), the second race (9.2) has a substantially planar bearing surface (bottom surface in figure 1), and the first and second surfaces are parallel." It is respectfully submitted that this is not correct. First bearing race 9.1 and second bearing race 9.2 are the inner and outer races of a ball bearing. Thus, the "top" surface of first race 9.1 and the "bottom" surface of second race 9.2 are cylindrical, not planar. They are concentric, not parallel. In fact, the term "parallel" has no meaning when comparing such cylindrical surfaces. Further, each of these surfaces has indentations therein for receiving and containing the rolling ball elements of the bearing. These indentations in Klein are the actual bearing surfaces, and there is no way they can be described as planar or parallel. Claim 4, and claims 5 and 6 depending therefrom, cannot be rejected under 35 U.S.C. §102(b) based on Klein for this reason alone.

Also, with regard to claim 6, the Examiner states in paragraph 4 of the Office Action, "The bearing elements [in Klein] are rollers." This is incorrect. The bearing

shown in both FIGS. 1 and 2 of Klein is a ball bearing with spherical bearing elements. This is confirmed in col. 1, ll. 50-52. Klein does call the bearing a "rolling" bearing but this is not the same as a *roller* bearing which, by definition, uses cylindrical bearing elements. Thus, claim 6 cannot be rejected under 35 U.S.C. §102(b) based on Klein for this reason alone.

In paragraph 5 of the Office Action, the Examiner again indicates that the bearing elements are rollers and uses this as a basis for rejecting claim 12. The above comments with regard to claim 6 apply also to claim 12.

Also in paragraph 5 of the Office Action, the Examiner states as a basis for rejecting claim 13:

[T]he race engagement surface is one of a pair of race engagement surfaces disposed on opposite sides (diametrically opposite) of the ring, and the first race (9.1) is [one] of a pair of first races engaging portions of the rotating surface on opposite sides on the ring (diametrically opposite). The second race (9.2) is one of a pair of second races disposed on opposite sides (diametrically opposite) of the ring and engaging a corresponding race engagement surface. The bearing elements (9) are disposed between corresponding ones of the first and second races.

This description is not understood because Klein only shows a single first race 9.1 and a single second race 9.2. These are inside a portion of the sealing ring and to one side of another portion. This arrangement is also used to dampen vibration, and Klein does not discuss at all how this would be accomplished with two sets of races. Thus, Klein is again an insufficient reference under 35 U.S.C. §102(b) for rejecting claim 13.

With regard to claims 15 and 16 mentioned in paragraph 7 of the Office Action, element 17 is not a "ring sealing surface." It is a reinforcement ring, and the comments above concerning reinforcement ring 17 of Klein also apply here.

In paragraph 8 of the Office Action, the Examiner again describes the bearing races of Klein as being planar and parallel. As already discussed herein, this is not correct, so claims 17-19 and 24 should be allowed for these reasons alone.

With regard to the comments about claim 25 in paragraph 9 of the Office Action, the arguments above with regard to claim 13 apply. Therefore, claim 25 should be allowed.

With regard to claim 26, the Examiner states in paragraph 10 of the Office Action:

Klein et al discloses a first race (9.1) defining inner and outer annular portions (axial ends of 9.1). Klein et al also discloses a second race (9.2) adapted for engagement with the stationary race engagement surface and being disposed between the annular portions of the first race (in a radial direction).

Even though the axial ends of first race 9.1 might be described as annular, it is clear that the second race 9.2 is not disposed between these axial ends. In fact, second race 9.2 is wholly outside of first race 9.1. How something could be between the axial ends of first race 9.1 "in a radial direction" as stated by the Examiner is unclear. Since first race 9.1 is presumably solid, *nothing* can be between the axial ends of it except the material of which it is composed. It is respectfully submitted that Klein simply does not show this feature of claim 26 and cannot be used as a reference under 35 U.S.C. §102(b) for the rejection of claim 26 or the claims depending therefrom.

In paragraph 11 of the Office Action, the Examiner again makes the statement that Klein shows planar and parallel bearing surfaces. The above arguments concerning this also apply to this basis for rejecting claim 28 and claims 29 and 30 which depend therefrom. Thus, again Klein fails as a reference under 35 U.S.C. §102(b).

Finally, with regard to the comments in paragraph 12 of the Office Action concerning claims 29, 30 and 34, applicant again respectfully notes that the bearing elements in Klein are not rollers but rather are balls.

It is therefore respectfully submitted that Klein does not provide an adequate basis for rejecting the claims in the third Office Action any more than did the references cited in the first two Office Actions.

Summary

Claims 7 and 20 have been cancelled and resubmitted in independent form as new claims 38 and 39, respectively, which should now be allowable along with already-allowed claims 9-11, 22, 23, 32, 33 and 35-37.

Claims 1 and 14 have been amended. In view of these amendments and the arguments presented, it is believed that the remaining claims are patentably distinguishable over the prior art of record and should be allowed.

Respectfully submitted,



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